

**GAO**

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Report to Congressional Requesters

August 1999

# MASS TRANSIT

## Status of New Starts Transit Projects With Full Funding Grant Agreements



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**Resources, Community, and  
Economic Development Division**

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**Congressional Requesters**

Since the early 1970s, the federal government has provided a large share of the nation's capital investment in urban mass transportation. Much of this investment has come through the Federal Transit Administration's (FTA) "new starts" program, which funds up to 80 percent of major new rail and bus transit systems that use separate and exclusive rights-of-way, as well as extensions to existing systems. FTA has entered into full funding grant agreements<sup>1</sup> totaling \$5.1 billion for 14 new starts transit projects that are currently under construction. Approximately \$3.2 billion of this \$5.1 billion has already been appropriated for these projects. Expected to cost a total of \$8.7 billion when the grant agreements were signed, these projects represent a substantial investment of federal, state, and local transportation funds.

Because of your interest in FTA's new starts transit investments, you asked us to assess the progress and cost of these 14 projects in terms of the schedule and cost estimates in the grant agreements. As agreed with your offices, this report, which includes the information we provided your staff in May 1999, describes the status of each project, identifies those projects that have experienced changes in their baseline cost estimates, and provides information on the reasons for the changes.

## Background

Under the new starts program, FTA uses full funding grant agreements to commit funding to transit projects. Before entering into a grant agreement, FTA assesses a project on the basis of specific financial and project justification criteria required by law and the agency's policy.<sup>2</sup> FTA considers a project for a grant agreement after it has progressed from the initial planning and preliminary engineering phases to the final design and construction phases.

<sup>1</sup>A full funding grant agreement commits federal new starts funding, subject to appropriations, to help design and construct transit projects.

<sup>2</sup>The Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), enacted in 1998, requires FTA to evaluate and rate new starts projects as either highly recommended, recommended, or not recommended on the basis of specific financial and project justification criteria and to include this information in its new starts report due to the Congress each February. At the same time, TEA-21 specifically exempts, from the rating requirement, projects that had full funding grant agreements in place prior to the act. These are the 14 projects we reviewed. According to FTA, these projects were assessed and found to be justified on the basis of information required by the laws and policies in place at the time the grant agreements were issued. See our report entitled *Mass Transit: FTA's Progress in Developing and Implementing a New Starts Evaluation Process* (GAO/RCED-99-113, Apr. 26, 1999) for a discussion of FTA's progress in developing an evaluation and rating process that reflects TEA-21's requirements.

Through the grant agreement, FTA establishes the terms and conditions of federal financial participation in a project as well as the maximum level of federal financial assistance. FTA pays up to 80 percent of a project's net cost, while state and local governments pay at least 20 percent. The federal funding commitments are subject to the annual appropriations process. The grant agreement also defines a project's scope, including the length of the system and the number of stations; its schedule, including the date when the system is expected to open for service; and its cost. To oversee each project, FTA uses a project management oversight contractor to help ensure that the project progresses on time, within budget, and in conformance with approved plans. Given that the full funding grant agreement limits the maximum federal funding for a project, the grantee is responsible for any project cost increases that may occur after the agreement is signed, unless the agreement is amended.

The 14 projects we reviewed have full funding grant agreements. FTA has proposed that these projects receive \$668.2 million in fiscal year 2000. This is 68 percent of the total \$980.4 million available for new starts projects in fiscal year 2000.<sup>3</sup> If the Congress appropriates the amounts proposed by FTA, the federal funding commitments for five of these projects would be complete in fiscal year 2000.

## Results in Brief

Of the 14 transit projects with full funding grant agreements, 6 had experienced cost increases as of May 1999. Half of these six projects have had cost increases ranging from 2 to 7 percent;<sup>4</sup> of these, two are not expected to meet their projected opening dates. The other half have experienced costs that are significantly higher than expected—more than 25 percent over the estimates approved by FTA in the grant agreements. The key reasons for the cost increases include (1) higher-than-anticipated contract costs, (2) schedule delays, and (3) project scope changes and system enhancements. These three projects are not expected to meet their originally projected opening dates. Of the eight remaining projects, three

<sup>3</sup>The \$980.4 million total is the amount of new starts funding subject to the "guarantee" in TEA-21, a procedural mechanism designed to ensure that minimum amounts of funding are provided each year for highway and mass transit programs. Of the remaining 32 percent (\$312.2 million) available for new starts projects, FTA recommended about \$248 million for 11 projects in the later stages of preliminary engineering. Seven of these projects are expected to enter final design by the beginning of fiscal year 2000. About \$46 million remains available for FTA to allocate among other projects currently in or approved to enter preliminary engineering by the end of fiscal year 2000. The balance has been set aside for special projects and project management oversight activities.

<sup>4</sup>As discussed in appendix II, one of the three grantees, the Metropolitan Atlanta Rapid Transit Authority, is seeking additional new starts funding to cover the cost increase experienced by the North Line extension project in Atlanta.

could potentially experience costs that are lower than expected, and the other five are expected to be completed within their approved budgets. Only one of these eight projects is not expected to meet its projected opening date.

For those projects with significant cost increases, we found the following:

- The South Boston Piers transitway project, which has some joint construction with the Central Artery/Tunnel project in Boston—one of the most expensive and complex highway projects ever undertaken—has experienced a net cost increase of \$115 million, or 28 percent of the estimated cost of \$413.4 million in the grant agreement. FTA, its oversight contractor, and the grantee attribute the cost increase primarily to an estimate based on the project's early design, which has since required modification, and unanticipated delays in the construction schedule. The construction delays were due in part to coordination problems on the joint construction contracts with the Central Artery/Tunnel project. The transitway is expected to open for service on December 31, 2002, 2 years later than the date in the grant agreement. Both FTA and the oversight contractor estimate that the transitway's cost could increase by an additional \$20 million to \$80 million because of pending issues such as potentially higher-than-expected contract costs for the project's last major segment and the grantee's decision to build a new vehicle maintenance facility or to expand an existing one. However, FTA does not plan to amend the full funding grant agreement to commit additional new starts funds to cover the cost increases. To pay for the cost increases, the grantee is proposing to use both federal formula funds<sup>5</sup> and state funds. FTA is using a financial management oversight contractor to review the grantee's proposal and its effect on the existing transit system.
- The Bay Area Rapid Transit's (BART) project to construct an extension of its existing system to the San Francisco International Airport has experienced a net cost increase of \$316.2 million, or 27 percent of the estimated cost of \$1.2 billion in the grant agreement. Of this amount, BART officials attributed more than half, or \$165.5 million, to higher-than-expected construction costs that resulted primarily from a very competitive Bay Area economy. While the grant agreement calls for a September 2001 opening date, BART officials now forecast that the airport extension will open 3 months later. However, FTA's project management oversight contractor has estimated that the opening could be as late as

<sup>5</sup>TEA-21 also authorized capital funds for urbanized areas on a formula rather than a project-specific basis.

June 2002 and that the cost of the project could grow by an additional \$53 million for work on the airport station and added contingencies. FTA is reviewing the project's revised cost estimates and BART's proposal to cover some of the additional costs with \$30 million in new starts funds originally budgeted for acquiring rail cars that would become available if BART canceled its planned \$100 million purchase of rail cars. BART has proposed to spend the remaining \$70 million on improving its vehicle maintenance facility rather than acquiring rail cars. FTA has no plans to amend the full funding grant agreement to commit additional new starts funds to cover the project's cost increases.

- The Tren Urbano rapid rail line in San Juan, Puerto Rico, is one of FTA's "turnkey" demonstration projects that incorporates contracts to design, build, operate, and maintain a system. Currently under construction, this project has experienced a net cost increase of \$426 million, or 34 percent of the \$1.25 billion estimated cost in the grant agreement. Among the primary factors contributing to the cost increase are changes in the project's scope, including the addition of two stations, certain station and system enhancements, and higher-than-estimated contract costs. The rail line is expected to open for service in May 2002—10 months later than the date in the grant agreement. FTA is conducting a financial capacity review of the grantee—the Puerto Rico Highway and Transportation Authority—to help ensure that adequate funding is available to build and maintain the project without adversely affecting the area's other transportation needs. FTA has no plans to amend the full funding grant agreement to commit additional new starts funds to cover the project's cost increase.

A summary of the status and cost of each project we reviewed appears in appendix I. Appendixes II through XV provide detailed information on each project.

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## Agency Comments

We provided the Department of Transportation with a draft of this report for review and comment. We met with FTA officials from the Office of Associate Administrator for Program Management, including officials from the Offices of Oversight and Engineering. FTA agreed with the report's contents and provided us with minor technical comments, which we have incorporated where appropriate.

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## Scope and Methodology

To address the issues discussed in this report, we reviewed project-specific documents, including the full funding grant agreements

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and project management oversight reports. To obtain funding information, we reviewed FTA's new starts report for fiscal year 2000. We also interviewed appropriate FTA headquarters and regional officials, FTA contractors responsible for overseeing the projects, and the grantees. We did not perform an independent assessment of the reasons for the cost increases. Rather, we relied on the information provided by FTA officials, FTA's contractors, and the grantees. We performed our work in accordance with generally accepted government auditing standards from April through July 1999.

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We are sending copies of this report to the Honorable Rodney E. Slater, Secretary of Transportation; the Honorable Gordon J. Linton, Administrator, Federal Transit Administration; the Honorable Jacob J. Lew, Director, Office of Management and Budget; and other interested parties. We are making copies available to others on request.

Key contributors to this report are listed in appendix XVI. Please call me at (202) 512-2834 if you have any questions about this report.



Phyllis F. Scheinberg  
Associate Director,  
Transportation Issues

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List of Requesters

The Honorable Phil Gramm  
Chairman, Committee on Banking,  
Housing, and Urban Affairs  
United States Senate

The Honorable Richard C. Shelby  
Chairman, Subcommittee on Transportation  
and Related Agencies  
Committee on Appropriations  
United States Senate

The Honorable Bud Shuster  
Chairman, Committee on Transportation  
and Infrastructure  
House of Representatives

The Honorable Frank R. Wolf  
Chairman, Subcommittee on Transportation  
and Related Agencies  
Committee on Appropriations  
House of Representatives





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## Abbreviations

BART	Bay Area Rapid Transit
Bi-State	Bi-State Development Agency
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
HOV	high-occupancy-vehicle
HTA	Puerto Rico Highway and Transportation Authority
MARC	Maryland Commuter Rail
MARTA	Metropolitan Atlanta Rapid Transit Authority
MBTA	Massachusetts Bay Transportation Authority
MOS	"minimum operable segments"
MTA	Metropolitan Transportation Authority of Los Angeles
MTA	Mass Transit Administration of Maryland
NJ Transit	New Jersey Transit Corporation
RT	Sacramento Regional Transit District
RTD	Regional Transportation District
SCCTD	Santa Clara County Transit District
TEA-21	Transportation Equity Act for the 21st Century
Tri-Met	Tri-County Metropolitan Transportation District
UTA	Utah Transit Authority

# Summary of New Starts Transit Projects With Full Funding Grant Agreements

Table I.1 shows the cost changes and opening dates projected for the 14 new starts projects with full funding grant agreements as of May 1999.

**Table I.1: Summary of New Starts Transit Projects With Full Funding Grant Agreements as of May 1999**

Dollars in millions

New Starts Project	Date of grant agreement	Baseline cost estimate	Revised grantee cost estimate	Amount of estimated increase	Percent increase	Total amount of grant agreement	Projected opening date
Atlanta/North Line Extension	12/20/94	\$ 381.3	\$407.4	\$26.1	7	\$305.0	12/16/00
Boston/South Boston Piers Transitway	11/5/94	413.4	528.4	115.0	28	330.7	12/31/02
Denver/Southwest Light Rail Extension	5/9/96	176.3				120.0	7/14/00
Houston/Regional Bus Plan	12/30/94	726.6	780.1	53.5	7	500.0	12/31/05
Los Angeles/North Hollywood Extension	6/9/97	1,310.8				681.0	5/31/00
Maryland/MARC Extension to Fredrick	6/19/95	131.6	134.2	2.6	2	105.3	3/31/01
Northern New Jersey/Hudson-Bergen	10/15/96	992.1				604.1	7/31/01
Portland/Westside Light Rail Extension	9/29/92	963.5				630.1	9/12/98
Sacramento/South Corridor Light Rail Line	6/20/97	222.0				111.2	9/30/03
Salt Lake City/South Light Rail Line	8/2/95	312.5				237.4	3/3/00
San Francisco/BART Airport Extension	6/30/97	1,167.0	1,483.2	316.2	27	750.0	6/30/02
San Jose/Tasman Light Rail West Extension	7/2/96	325.0				182.8	12/20/99
San Juan/Tren Urbano Rapid Rail Line	3/13/96	1,250.0	1,676.0	426.0	34	307.4	5/31/02
St. Louis/St. Clair County Light Rail Extension	10/17/96	339.2				243.9	9/30/01
<b>Total</b>		<b>\$8,711.3</b>				<b>\$5,108.9</b>	

# Atlanta/North Line Extension

## Project Description and Status

The Metropolitan Atlanta Rapid Transit Authority (MARTA) is constructing a 2.3-mile, two-station extension of the North Line from the Dunwoody Station to North Springs. When completed, this extension will serve the area north of Atlanta, which includes Perimeter Center and north Fulton County, and will connect this area with the rest of the region by providing transit service for both commuters and inner-city residents traveling to expanding job opportunities. The full funding grant agreement was signed on December 20, 1994. Overall construction is progressing on schedule with no major issues of schedule and quality. As of May 1999, the project was expected to open for service on December 16, 2000, the date scheduled in the grant agreement. However, as of May 1999, the estimated cost of the project was revised upward to \$407.4 million, \$26.1 million more than the original baseline estimate approved in the grant agreement. MARTA is seeking additional new starts funding to cover this increase as well as the cost of additional vehicles.

Table II.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by the Federal Transit Administration (FTA) for fiscal year 2000, and the project's estimated opening date.

**Table II.1: Atlanta/North Line Extension—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$381.3	\$407.4	\$26.1	\$305.0	\$260.8	\$249.9	\$10.0	\$45.1	\$10.0	12/16/00

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: MARTA-FTA full funding grant agreement, project management oversight data, and FTA's fiscal year 2000 annual new starts report.

## Reasons for Cost Increases

According to FTA, the project management oversight contractor, and the grantee, the estimated \$26.1 million cost increase is due primarily to

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station parking enhancements and the impacts on the project's right-of-way from the proposed widening of an adjacent freeway.

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## Pending Issues

MARTA is seeking new starts funding for the purchase of an additional 28 vehicles that are expected to add \$55.8 million to the cost of the project. MARTA has initiated negotiations with FTA for an amendment to the grant agreement to cover both the \$26.1 million for the scope changes and the \$55.8 million for the additional vehicles. The Transportation Equity Act for the 21st Century authorized new starts funding for the project's scope changes, including the purchase of the 28 additional rapid rail cars, from amounts authorized by the Intermodal Surface Transportation Efficiency Act of 1991. FTA is reviewing MARTA's revised fleet management plan that addresses the need for these vehicles.

# Boston/South Boston Piers Transitway

## Project Description and Status

Developed by the Massachusetts Bay Transportation Authority (MBTA), this project, which is to be constructed in two phases, is a 1.5-mile underground transitway with five stations that will connect three existing transit systems in the South Boston Piers area. The full funding grant agreement, signed on November 5, 1994, is for phase 1, which consists of a 1-mile, three-station tunnel between South Station and the World Trade Center. Phase 1 also includes the procurement of 32 vehicles and the construction of a new vehicle maintenance facility. Part of the construction has been planned and designed with the Central Artery/Tunnel highway project. As of May 1999, the transitway project was expected to open for service on December 31, 2002—2 years later than the projected date in the grant agreement. Additionally, the estimated cost of the project was revised upward to \$528.4 million—\$115 million more than the original baseline estimate approved in the grant agreement. FTA is reviewing the grantee's latest cost recovery plan dated January 1999. A number of pending issues could affect the total cost of the project.

Table III.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table III.1: Boston/South Boston Piers Transitway—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$413.4	\$528.4	\$115.0	\$330.7	\$276.8	\$241.9	\$34.9	\$54.0	\$34.9	12/31/02

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: MBTA-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Reasons for Cost Increases

According to FTA, the project management oversight contractor, and MBTA, the estimated net cost increase of \$115 million is primarily the result of schedule delays and the fact that the original baseline cost estimate was



based on the project's early design, which has since required modification. Factors contributing to these delays included coordination problems on the joint construction contracts with the Central Artery/Tunnel project, complications with the design for relocating utilities, and differing site conditions. Land acquisition costs have also been higher than originally estimated. According to MBTA, not meeting the federal funding schedule in the grant agreement did not contribute to the project's cost increase and construction delays.

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## Pending Issues

According to FTA and the project management oversight contractor, issues that could increase the project's cost by an additional \$20 million to \$80 million include (1) potentially higher-than-anticipated contract costs to construct the last major segment of the transitway tunnel, (2) the decision of whether to build a new vehicle maintenance facility or expand an existing one, (3) a local agency's participation in raising capital for eight vehicles, (4) a higher-than-anticipated unit cost for the vehicles, and (5) potential additional land acquisition costs. FTA expects the first four issues to be resolved by the first quarter of fiscal year 2000. FTA also expects MBTA to update its cost recovery plan once these issues are resolved.

To pay for the cost increases, MBTA is seeking to use both federal formula funds and state funds. Currently, FTA is using a financial management oversight contractor to review MBTA's financial plan. This plan addresses the funding of all of the grantee's transit projects and systems. According to FTA, this review will enable the agency to determine whether the grantee's proposal to use formula funds to cover the cost increases would adversely affect the existing transit system. As an alternative, the grantee believes that it has sufficient resources to use state bond funds to pay for any cost increases. FTA has no plans to amend the grant agreement to commit additional new starts funds to the project.

# Denver/Southwest Light Rail Extension

## Project Description and Status

The Regional Transportation District (RTD) in Denver is constructing an 8.7-mile light rail extension between Denver and Littleton. The double-track line extends from the I-25/Broadway Station on the existing Central Corridor line to Mineral Avenue in Littleton, running parallel to Santa Fe Drive over an exclusive, grade-separated right-of-way. The full funding grant agreement was signed on May 9, 1996. As of May 1999, the project was expected to open as scheduled on July 14, 2000. Recent discussions with FTA confirmed that the project should open on or before that date.

Table IV.1 shows the changes in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table IV.1: Denver/Southwest Light Rail Extension—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$176.3			\$120.0	\$73.0	\$65.5	\$7.5	\$35.0	\$19.5	7/14/00

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: RTD-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

According to FTA and the project management oversight contractor, the only outstanding issue concerns potential defects in some girders. According to one FTA official, only one installed girder has been found to be defective so far. The engineers involved on the project do not believe that this will affect the projected opening date.

# Houston/Regional Bus Plan

## Project Description and Status

Houston Metro's \$1 billion Regional Bus Plan consists of a package of improvements to its existing bus system. The package includes new and extended high-occupancy-vehicle (HOV) facilities and ramps, several transit centers and park-and-ride lots, bus acquisitions, bus service expansion, and supporting facilities. The Regional Bus Plan has both a federal and local component. The full funding grant agreement, signed on December 30, 1994, covers only the federal component of the project. As of May 1999, the projected opening date was December 31, 2005, or 3 years beyond the date specified in the grant agreement.

Table V.1 shows the change in the project's estimated costs, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table V.1: Houston/Regional Bus Plan—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$726.6	\$780.1	\$53.5	\$500.0	\$447.2	\$437.5	\$9.7	\$62.5	Complete	12/31/05

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: Houston Metro-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Reasons for Cost Increases

The \$53.47 million dollar increase in the federal component of the project is due primarily to a 2-year delay resulting from local contractors' challenging the constitutionality of Houston Metro's Disadvantaged Business Enterprise program. In 1997, the program was held unconstitutional, and Metro is currently appealing the decision. While the federal component of the project has increased, the cost of the overall project has remained constant at \$1 billion because the cost of the local component has decreased. According to Houston Metro, not meeting the funding schedule in the grant agreement did not affect the project or contribute to cost increases.

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**Appendix V**  
**Houston/Regional Bus Plan**

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FTA is reviewing Houston Metro's request to amend the grant agreement. The amendment would officially extend the opening date to December 31, 2005, and adjust the budget to reflect the current cost estimate. The amount of federal participation—\$500 million—would not change.

# Los Angeles/North Hollywood Extension

## Project Description and Status

The Metro Rail Red Line project in Los Angeles is being implemented through a series of "minimum operable segments" (MOS). A full funding grant agreement was signed on June 9, 1997, for the MOS-3 North Hollywood extension. This extension is currently under construction and is about 1 year from completion. The MOS-3 covers two additional extensions—East Side and Mid-City. Work on these two extensions has been suspended indefinitely. The Los Angeles Metropolitan Transportation Authority (MTA) is currently conducting a study on the corridors in which the segments were located. FTA officials are unsure of when, or if, work will resume on the two suspended segments.

Table VI.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table VI.1: Los Angeles/North Hollywood Extension—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$1,310.8			\$681.0	\$571.7	\$532.8	\$38.9	\$50.0	\$98.3	5/31/00

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: MTA-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

FTA's financial management oversight contractor is studying all of MTA's operations and related financing. The grantee's current cost estimate for North Hollywood does not include an additional \$33.9 million in modifications that are beyond the scope approved in the grant agreement. According to FTA officials, the costs associated with these changes must be borne by the grantee because the changes are outside of the project's approved scope. According to FTA, the project is being completed within budget and is projected to open in May 2000—7 months earlier than projected in the agreement.

# Maryland/MARC Extension to Frederick and System Improvements

## Project Description and Status

The Mass Transit Administration of Maryland (MTA) is extending the Maryland Commuter Rail (MARC) system from Point of Rocks to Frederick, Maryland. The extension will operate on about 13 miles of rail right-of-way owned by CSX Transportation. The full funding grant agreement provides for track, signal, and other improvements; the construction of 2 new stations; the acquisition of real estate, including 3.4 miles of right-of-way from CSX; and the procurement of up to 59 new bi-level cars and up to 6 new locomotives. The grant agreement was signed on June 19, 1995, and projected an opening date of December 1998. However, as of May 1999, the project was more than 2 years behind schedule primarily because of prolonged negotiations between MTA and CSX over the purchase of the 3.4 miles of right-of-way.

Table VII.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table VII.1: Maryland/MARC Extension to Frederick and System Improvements—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$131.6	\$134.2	\$2.6	\$105.3	\$105.3	\$104.6	\$0.70	\$0.70	Complete	3/31/01

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: Maryland MTA-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Reasons for Cost Increases

According to FTA and the project management oversight contractor, the increase of \$2.6 million in the cost of the project is primarily due to the prolonged negotiations between MTA and CSX over the purchase of the 3.4 miles of right-of-way.

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## **Pending Issues**

According to the project management oversight contractor, at the current rate of progress, an opening date of late summer 2001 appears to be more reasonable than the date currently projected. Construction bids for the project are expected to be opened in early August 1999. The awards will provide an indication of whether the cost of the project could increase further.

# Northern New Jersey/Hudson-Bergen Waterfront Light Rail Line

## Project Description and Status

The New Jersey Transit Corporation (NJ Transit) is constructing a 9.6-mile, 16-station light rail line along the Hudson River Waterfront in Hudson County, from the Hoboken Terminal to 34th Street in Bayonne and Westside Avenue in Jersey City. This line is intended as the "initial operating segment" of a larger 21-mile, 30-station line extending from the Vince Lombardi park-and-ride lot in Bergen County to Bayonne, passing through Port Imperial in Weehauken, Hoboken, and Jersey City. The full funding grant agreement was signed on October 15, 1996. The initial operating segment has been broken down further into two segments because of a locally approved alignment change. As of May 1999, the first segment was expected to open for service in March 2000. However, the remaining segment where the alignment change occurred is not expected to open until July 2001—1 year beyond the date projected in the grant agreement.

Table VIII.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table VIII.1: Northern New Jersey/Hudson-Bergen Waterfront Light Rail Line—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$992.1			\$604.1	\$233.0	\$228.3	\$4.7	\$99.0	\$276.8	7/31/01

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: NJ Transit-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

This project could experience a cost decrease because of reduced financing costs for the rail cars and locally approved alignment changes that have reduced the number of stations. The project management oversight contractor has estimated that the project's cost could be reduced by \$44.3 million primarily because of reduced financing costs. The cost of



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**Appendix VIII**  
**Northern New Jersey/Hudson-Bergen**  
**Waterfront Light Rail Line**

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the project could decrease further because of the alignment changes. However, the final design for these changes is not complete, and a Finding of No Significant Impact (FONSI) has not yet been issued. If a FONSI is issued, FTA expects to negotiate an amendment to the grant agreement to address the potential changes to the project's overall scope and cost.

# Portland/Westside Light Rail Extension to Hillsboro

## Project Description and Status

The Tri-County Metropolitan Transportation District (Tri-Met) in Portland, Oregon, has constructed an extension of the existing Banfield light rail line from its downtown Portland terminus to downtown Hillsboro. The project consists of a 17.7-mile, double-track fixed guideway with 20 stations and 9 park-and-ride lots. The route includes a 3-mile twin-tube tunnel under the West Hills, essentially paralleling the Sunset Highway. Also included are 36 low-floor light rail vehicles, the first to be placed in service in the United States. The full funding grant agreement was signed on September 29, 1992. The Westside-Hillsboro light rail project opened for service on September 12, 1998. The contract's closeout has continued into 1999, and most of the contracts are to be completed by early 2000.

Table IX.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table IX.1: Portland/Westside Light Rail Extension to Hillsboro—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$963.5			\$630.1	\$630.1	\$619.0	\$11.1	\$11.1	Complete	9/12/98

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: Tri-Met-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

According to the grantee, this project could cost \$9.72 million less than the original baseline cost estimate. An amendment to the grant agreement that would allow the balance of funds to be used to purchase up to four additional light rail vehicles is awaiting FTA's approval.

# Sacramento/South Corridor Light Rail Line

## Project Description and Status

The Sacramento Regional Transit District (RT) is developing an 11.3-mile light rail line in the South Sacramento Corridor. The system will follow existing Union Pacific right-of-way from downtown Sacramento to Calvine/Auberry. The project is being implemented in several phases. The full funding grant agreement, signed on June 20, 1997, represents the first phase and covers 6.3 miles, 6 stations, 3 park-and-ride lots, and 24 light rail vehicles. The grantee estimated that 15,000 riders will use the system each day. The project is in the later stages of final design (23 months into a 75-month schedule) and, as of May 1999, was on target to meet its September 30, 2003, opening date.

Table X.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table X.1: Sacramento/South Corridor Light Rail Line—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$222.0			\$111.2	\$52.3	\$51.5	\$0.8	\$25.0	\$34.7	9/30/03

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: RT-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

This project is in the later stages of final design, and, as of May 1999, there were no outstanding issues that could adversely affect the project's schedule or budget.

# Salt Lake City/South Light Rail Line

## Project Description and Status

The Utah Transit Authority (UTA) is constructing a 15-mile light rail line from downtown Salt Lake City to the southern suburbs. The line would operate on city streets downtown (2 miles) and then follow a lightly used railroad alignment owned by UTA to the suburban community of Sandy (13 miles). This project is one component of the Interstate 15 corridor improvement initiative, which includes reconstruction of a parallel segment of I-15. The full funding grant agreement, signed on August 2, 1995, projected an opening date of December 31, 2000. As of May 1999, the project was expected to open for service on March 3, 2000, nearly 10 months ahead of schedule.

Table XI.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table XI.1: Salt Lake City/South Light Rail Line—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$312.5			\$237.4	\$177.4	\$199.5	(\$22.1)	\$37.9	Complete	3/3/00

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: UTA-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

According to UTA and FTA, this project could cost \$23.53 million less than the original baseline estimate. A UTA official attributed potential cost savings primarily to favorable construction bids at the outset of the project, the early procurement of vehicles already in production through another grantee, the reduction of the project schedule by 1 year, and the fact that federal funds have been provided in accordance with the funding schedule in the grant agreement. UTA and FTA officials are currently negotiating the allocation of unspent funds to improvements to the project's existing scope. For example, UTA hopes to widen some

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**Appendix XI**  
**Salt Lake City/South Light Rail Line**

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single-track bridges to double-track and purchase additional vehicles to handle the increased traffic generated by special events.

# San Francisco/BART Airport Extension

## Project Description and Status

The Bay Area Rapid Transit District (BART) is implementing an 8.2-mile, four-station extension of the BART system to provide service to San Francisco International Airport. The project consists of a mainline extension from the existing BART station at Colma, through Colma, South San Francisco, and San Bruno, terminating at the Millbrae Avenue BART/CalTrain Station. An additional track from the main line north of Millbrae will take BART trains directly into an airport station adjoining a new international terminal. The grant agreement, signed on June 30, 1997, called for a September 2001 opening date. However, as of May 1999, the project was expected to open in June 2002—9 months behind schedule.

Table XII.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table XII.1: San Francisco/BART Airport Extension—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$1,167.0	\$1,483.2	\$316.2	\$750.0	\$214.3	\$153.4	\$60.9	\$84.0	\$512.6	06/30/02

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: BART-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Reasons for Cost Increases

Of the \$316 million cost increase, \$165.5 million (52 percent) is attributed to construction costs. Of this amount, BART attributed \$109 million to (1) higher-than-expected bids on three contracts caused by a very competitive Bay Area economy and (2) added contingencies to address potentially high bids on other contracts. BART attributed the remaining construction cost increases to a variety of additions to the project's scope, low initial estimates for systems work (e.g., automatic fare collection system), and change orders due to unexpected conditions. The nonconstruction cost increases are primarily due to higher-than-expected

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costs for right-of-way and third-party contracts—engineering and construction management. In addition, about \$16.5 million of the cost increase is associated with additional financing costs that BART anticipates incurring because of a slower-than-expected pace of federal funding.

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## Pending Issues

FTA is reviewing BART's cost estimate of \$1.483 billion and the project management oversight contractor's estimate of \$1.536 billion. The project management oversight contractor's estimate reflects cost increases associated with the station work at the airport and additional contingency amounts. It is unclear whether FTA will require BART to revise its cost estimate to reflect the estimate of the oversight contractor and, if so, where BART would obtain additional funding. Another issue under negotiation is BART's proposal to cancel its planned \$100 million purchase of 28 rail cars and spend \$70 million on improving 4 of its maintenance facilities. These improvements would enable BART to expand the capacity of its maintenance shops and thus reduce the amount of time that cars are out of service. With these improvements, BART believes that it can use its existing fleet to provide the vehicles needed to operate on the new extension. BART proposes to use the \$30 million currently in the revenue vehicles' budget to help cover the construction cost increases. FTA is reviewing this proposal and a new cost/finance plan. However, FTA has no plans to amend the grant agreement to commit additional new starts funds to cover the project's cost increases.

# San Jose/Tasman Light Rail West Extension

## Project Description and Status

The Santa Clara County Transit District (SCCTD) is constructing a 7.6-mile light rail extension of the existing Guadalupe Corridor light rail system. The project consists of 12 new stations and 2 park-and-ride lots. It has an estimated ridership of 5,800 per day and will connect with the CalTrain commuter rail system at its new western terminus. Overall construction is progressing on schedule with no major issues of schedule and quality. The full funding grant agreement, signed on July 2, 1996, projected an opening date of December 2000. As of May 1999, the projected opening date was December 20, 1999.

Table XIII.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table XIII.1: San Jose/Tasman Light Rail West Extension—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$325.0			\$182.8	\$162.8	\$150.9	\$11.9	\$31.9	Complete	12/20/99

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: SCCTD-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

The grantee's current cost estimate does not include an additional \$2.8 million in modifications that are beyond the scope approved in the grant agreement and therefore must be borne by the grantee.



# San Juan/Tren Urbano Rapid Rail Line

## Project Description and Status

The Puerto Rico Highway and Transportation Authority (HTA) is constructing a 10.7-mile, 16-station rapid rail line between Bayamon Centro and the Sagrado Corazon area of Santurce in the San Juan metropolitan area, which covers phase 1 of the project. This project has been selected as one of FTA's "turnkey" demonstration projects, which incorporates contracts to design, build, operate, and maintain the system. The full funding grant agreement was signed on March 13, 1996. During 1996 and 1997, seven design-build contracts were awarded for different segments of the project. The Systems Test Track and Turnkey contract, awarded in August 1996, provided for the purchase of rolling stock, design and installation of all systemwide components, construction of one of the segments, and operation and maintenance of the project for an initial period of 5 years. The Tren Urbano project is expected to carry 113,300 riders per day in 2010. As of May 1999, the project was expected to open for service in May 2002—10 months behind schedule. According to the project management oversight contractor, this delay is primarily due to the limited availability of a skilled workforce.

Table XIV.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table XIV.1: San Juan/Tren Urbano Rapid Rail Line—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$1,250.0	\$1,676.0	\$426.0	\$307.4	\$107.4	\$48.3	\$59.1	\$82.0	\$177.10	5/31/02

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: Puerto Rico HTA-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Reasons for Cost Increases

As of May 1999, the cost estimate for the Tren Urbano project was \$1.676 billion. This represents a \$426 million dollar increase over the original

estimate of \$1.25 billion in the full funding grant agreement. According to FTA, the project management oversight contractor, and the grantee, the primary factors contributing to this increase include the following: the addition of two stations, alignment changes, station enhancements, an enhanced fare collection system, an expanded system integration and quality assurance program, and engineer's low initial estimates.

Approximately 2 years had elapsed between the time the engineer's estimates used in the grant agreement were prepared and the fall of 1997, when all of the design-build contracts were awarded. During this period, two stations were added, and other station enhancements were made. The contract awards were \$129 million higher than the engineer's original estimates. However, the engineer's estimates prepared at the time the contracts went out for bid were quite close to the bids received. Since the contract awards, there has been an additional \$185.2 million in approved enhancements and scope changes, including \$85 million for additional construction management services, \$20.2 million for additional vehicles, and \$22.7 million for contract options related to the two added stations. In addition, there is currently another \$81.5 million in potential and pending increases for the project because of enhancements, differing site conditions, and hurricane delays. This includes \$26.8 million for an enhanced fare collection system.

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## Pending Issues

FTA is conducting a financial capacity review of HTA for the Tren Urbano project. As part of this review, FTA is assessing the project's financial plan to ensure that adequate funding is available to build and maintain the project without adversely affecting the area's other transportation needs. FTA's initial concerns have centered on the department-wide rather than project-specific nature of the plan and the plan's lack of detail and explanation in some areas. HTA has hired a consultant to assist in revising the financial plan. FTA's financial capacity review contractor plans to meet with the consultant to address FTA's concerns. FTA is also preparing to amend the full funding grant agreement to reflect the revised cost estimate and projected opening date. This amendment would also explicitly reference the non-new starts federal funds that would be dedicated to assist in financing the project's estimated cost increase. The amendment would not change the current new starts commitment level of \$307.4 million. FTA expects all documentation needed for FTA headquarters' final review to be completed by early August 1999.

# St. Louis/St. Clair County Light Rail Extension

## Project Description and Status

The Bi-State Development Agency (Bi-State) is developing a 26-mile extension of the Metrolink light rail line from downtown East St. Louis, Illinois, to the Mid America Airport in St. Clair County, Illinois. The full funding grant agreement, signed on October 17, 1996, covers a 17.4-mile interim segment from the current Metrolink terminal in downtown East St. Louis to Belleville Area College. This segment consists of 8 stations, 7 park-and-ride lots, 20 new light rail vehicles, and a new maintenance facility in East St. Louis. The route makes extensive use of abandoned rights-of-way. As of May 1999, the project was on schedule and therefore expected to meet the opening date of September 30, 2001, approved in the grant agreement.

Table XV.1 shows the change in the project's estimated cost, the amount of federal funding provided in the past, the amount proposed by FTA for fiscal year 2000, and the project's estimated opening date.

**Table XV.1: St. Louis/St. Clair County Light Rail Extension—Estimated Cost and Status of Federal Financial Support as of May 1999**

Dollars in millions

Baseline cost estimate	Revised grantee estimate	Amount of estimated increase	Total grant amount	Amount to be funded through FY 1999	Amount provided through FY 1999	Funding shortfall through FY 1999	FTA's proposed funding for FY 2000	Amount required to complete grant <sup>a</sup>	Projected opening date
\$339.2			\$243.9	\$109.8	\$104.4	\$5.4	\$50.0	\$89.5	9/30/01

Legend

FY = fiscal year

<sup>a</sup>Amount of funding required to complete the grant agreement if the amount proposed for fiscal year 2000 is appropriated.

Sources: Bi-State-FTA full funding grant agreement, project management oversight report data, and FTA's fiscal year 2000 annual new starts report.

## Pending Issues

Several issues could affect the project's cost and schedule, including contractors' potential claims relating to Illinois Department of Natural Resources permit issues and real estate acquisition. The project management oversight contractor does not believe that these issues are currently of sufficient significance to change either the project's cost estimate or projected opening date.

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# GAO Contacts and Staff Acknowledgments

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## GAO Contacts

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